Win–Win Approaches to Development and the Environment

Farm Forestry: Cultivating Trees As Crops

Center for Development Information and Evaluation

In many developing countries, agriculture and forestry have yet to coexist sustainably. The world's remaining forested lands continue to dwindle under pressures of growing populations and their need for land to farm and for fuelwood and construction material. With the help of USAID some developing countries are finding that land cleared for cultivation or pasture can be equally or more profitable and better preserved if planted again in trees. In increasing numbers, developing-country farmers and ranchers are returning a share of the lands to trees. In return, they are gaining both economic and environmental dividends. Farm forestry has emerged both as a source of commercial timber and fuelwood and as a means for reducing the pressures on remaining natural forests for tree products.

The Problem

Runaway deforestation, particularly the destruction of tropical forests, is resulting in the loss of watersheds, wildlife habitats, and recreational areas in developing countries. Developing-country governments have few resources to undertake reforestation and to manage remaining natural forests, despite increasing demands of their growing populations for forest services and products. Much land that was once forested has been converted to private ownership and is used for agriculture or livestock grazing. A share of this farmland is too fragile to sustain cultivation and is rapidly eroding.

The Win–Win Solution

A recent USAID evaluation has identified private farm forestry, by small and large landowners alike, to be a promising arrangement for getting trees back into the ground and for reducing pressures on remaining natural forests. (See Synthesis Report *Forestry and the Environment: An Assessment of USAID Support for Farm and Community Forestry*, September 1995). Although the number of experiments with farm forestry are limited, preliminary findings suggest the approach warrants consideration as a useful tool for fostering environmentally sustainable development in a range of developing-country settings.

The clouds of declining global forest cover have a silver lining in the growing scarcity and rising value of timber products. Trees are becoming more valuable as a renewable cash crop than as a depletable resource. In developing countries with supportive economic and regulatory policies, a growing share of forest products is coming from trees planted on farmland. The climate of the tropics and subtropics enables farmers to harvest a "crop" of trees within a few years after putting seedlings in the ground. Tree cuttings for fodder and fencing can come sooner. In 8 to 10 years, trees are large enough for construction timber used in rural houses.

Commercial tree seedling nurseries and custom planting and harvesting enterprises have sprung up to support farm forestry. These ventures are easily undertaken by small entrepreneurs with limited capital. Women are important participants and income-earners in seedling cultivation and tree planting. In addition, farm forestry has demonstrated the capacity to produce environmental dividends—stabilizing hillsides, restoring waterlogged and saline soils, and providing watersheds and wildlife habitats.

The Role of USAID

USAID projects have fostered farm forestry as a strategy for restoring tree cover on fragile farmlands and for increasing the private supply of timber products as an alternative to cutting down natural forests. Many of these projects have aimed at meeting the growing demand for fuelwood from commercially grown trees rather than from remaining natural forests.

In **Pakistan** a USAID forestry project introduced farm forestry to meet increased demand for fuelwood, the principle source of energy for rural households. As a result, a new farm-based timber products industry has been spawned. Tree nurseries supply tens of millions of seedlings annually to a growing number of cultivators seeking to put the most marginal areas of their farmlands into cash-earning tree production. A new forestry extension training curriculum, recently graduated tree production agents, and a new government's social forestry wing support these ventures.

In **Costa Rica** the Agency helped launch a program to encourage commercial plantations of native tree species on lands that had been cleared of forest for pasture. Working with landowners willing and able to make the investments and assume the risks, a regional environmental nongovernmental organization (NGO) is monitoring the performance under plantation management of eight species of native trees with promising production and timber market value.

In **the Philippines**, government and NGO extension workers have introduced and adopted an agroforestry system for hillside farmers. The system both stabilizes the soil and captures enough moisture to allow crop cultivation in rain-fed conditions. It system involves planting cash crops in alleys between rows of leguminous trees along contoured hillsides. It has been picked up and applied in **Nepal** and **Sri Lanka.**

Farm forestry may hold particular promise in countries where wood for fuel, construction, and other uses is in short supply. Specifically, USAID, other donors, NGOs, and developing country governments can work together to

- Identify, design, and develop farm forestry projects
- Introduce economic and land and tree tenure policies that promote farm

forestry and the marketing and trade of forest products

- # Promote private investments in tree seedling nurseries and custom tree planting and harvesting services
- # Provide technical and financial support to training, recruiting, and curriculum reform for forestry extension activities
- # Encourage local commercial funding sources to cover the financial requirements of establishing farm forestry enterprises

Fund research into farm forestry technologies and wood products markets, and aid networking and exchange of information among forestry extension agents and researchers

Outstanding Issues

Regulation and control. In some countries farmers fear that in planting trees they lose control of their land since permits are required by government bureaucracies before the trees can be cut or harvested. Public forestry services have traditionally viewed their role as policing public forestlands, not working as partners to promote tree planting on private farms. Government foresters must evolve from enforcers to extension agents.

Financial constraints. Tree farming is a long-term commitment that requires up-front investment of land, labor, and some capital for planting and tree management. Without arrangements for quick income, many farmers—particularly poor farmers on marginal lands where trees might be particularly suitable environmentally— might be unable to participate. Tree nurseries are one mechanism that can generate some immediate income. Other arrangements may also be required if farm forestry is to spread.

Technical support. Like any other crop production activity, farm forestry requires know-how, capital investment, and quality planting materials. Government agencies can play a role in providing credit, extension advice, and, seed for seedling production. Still, promotion of tree farming has no institutional home in some government settings. Trees fall outside the responsibility of agriculture ministries, and forest departments are mandated to protect public forests, not provide extension and seed to commercial farmers. Banks often have no lending programs for tree cultivation and are reluctant to lend for the medium- to long- term periods required for establishing and managing tree plantations till harvest.

Tree species performance. A number of critical questions remain to be answered about the performance of many tree species when planted commercially and about their environmental impact. Species such as eucalyptus have been criticized for lowering water tables in areas where moisture is in short supply but praised for their contribution to improved growing conditions in waterlogged areas. Some native tree species introduced to farmers have yet to be studied to determine their growth performance and their disease and pest resistance when grown in block plantations. Markets for timber products from these trees are also not well defined. Farmers encouraged to cultivate these species are assuming production and marketing risks. The risks are acceptable, perhaps, for larger landowners but probably too high for smaller cultivators.

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